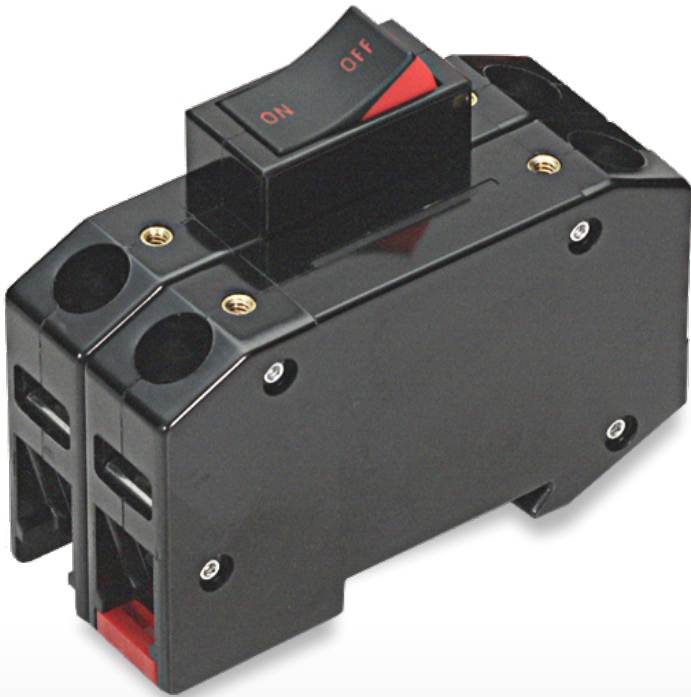
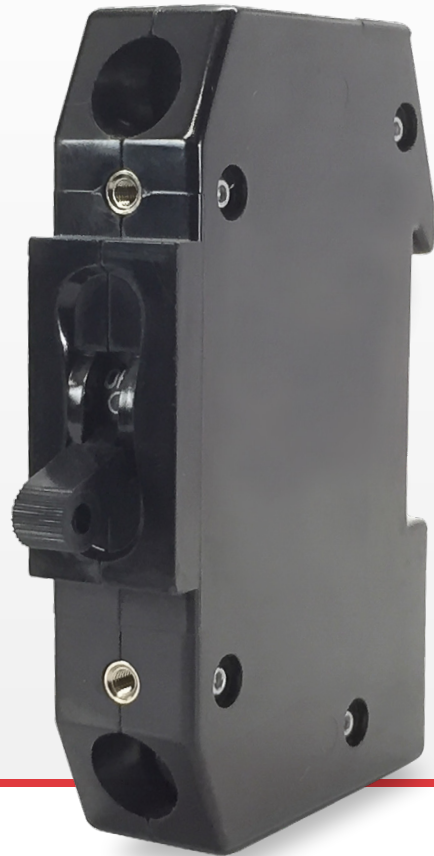


D-Series

DIN Rail Hydraulic-Magnetic
Circuit Breaker

PRODUCT WEBPAGE

request sample, configure part, watch video



Designed for snap-on-back panel rail mounting on either a 35mm x 7.5mm, or a 35mm x 15mm Symmetrical Din Rail, allowing rapid and simple mounting and removal of the breaker. It features recessed, wire-ready, touch-proof, shock-resistant terminals, suitable for automatic screwdriver assembly, as well as "Dead Front" construction characteristics.

| | | | |
|------------|----------------|-----------|-------------|
| 1-4 | 0.02-50 | 80 | 480Y |
| Poles | Amps | VDC Max | VAC Max |

Typical Applications

- Industrial Controls
- Renewable Energy

Tech Specs

Electrical

| | |
|------------------------|--|
| Maximum Voltage | AC, 480Y VAC (See Table A), 50/60 Hz, 80VDC |
| Standard Current Coils | 0.100, 0.250, 0.500, 0.750, 1.00, 2.50, 5.00, 7.50, 10.0, 15.0, 20.0, 25.0, 30.0, 35.0, 40.0 & 50.0. Other ratings available - consult factory. |
| Standard Voltage Coils | DC - 6V, 12V; AC - 120V, other ratings available, see ordering scheme. |
| Insulation Resistance | Minimum of 100 Megohms at 500 VDC. |
| Dielectric Strength | UL, CSA: 1960 V 50/60 Hz for one minute between all electrically isolated terminals. D-Series circuit breakers comply with the 8mm spacing and 3750V 50/60 Hz dielectric requirements from hazardous voltage to operator accessible surfaces and between adjacent poles per Publications EN 60950 and VDE 0805. |
| Resistance, Impedance | Values from Line to Load Terminal based on Series Trip Circuit Breaker |

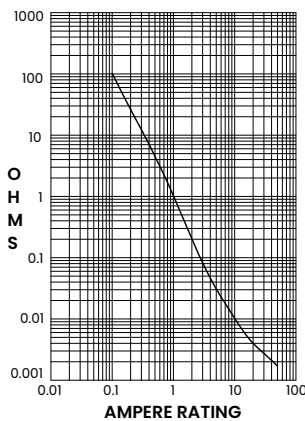
Mechanical

| | |
|-----------------|---|
| Endurance | 10,000 ON-OFF operations @ 6 per minute; with rated current & voltage. |
| Trip Free | All D-Series circuit breakers will trip on overload, even when actuator is forcibly held in the ON position. |
| Trip Indication | The operating actuator moves positively to the OFF position when an overload causes the breaker to trip. |

Physical

| | |
|--------------------------|--|
| Number of Poles | Rocker Type: 1-3; Handle Type: 1-4 |
| Internal Circuit Config. | Switch Only and Series Trip with current or voltage trip coils. |
| Weight | Approximately 128 grams/pole (Approximately 4.57 ounces/pole) |
| Standard Colors | Housing - Black; Actuator - See Ordering Scheme. |
| Mounting | Mounts on a standard 35mm Symmetrical DIN Rail (35 x 7.5 or 35 x 15mm per DIN EN5002). |

RESISTANCE PER POLE VALUES
from Line to Load Terminals
(Values Based on Series Trip Circuit Breaker)



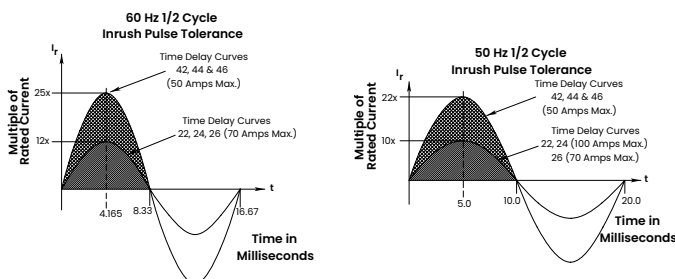
| CURRENT (AMPS) | TOLERANCE (%) |
|----------------|---------------|
| 0.10 - 5.0 | 15 |
| 5.1 - 20.0 | 25 |
| 20.1 - 50.0 | 35 |

Environmental

Designed and tested in accordance with requirements of specification MIL-PRF-55629 & MIL-STD-202 as follows:

| | |
|-----------------------|---|
| Shock | Withstands 100 Gs, 6ms, sawtooth while carrying rated current per Method 213, Test Condition "I". Instantaneous and ultra-short curves tested @ 90% of rated current. |
| Vibration | Withstands 0.060" excursion from 10-55 Hz, and 10 Gs 55-500 Hz, at rated current per Method 204C, Test Condition A. Instantaneous and ultra-short curves tested at 90% of rated current. |
| Moisture Resistance | Method 106D, i.e., ten 24-hour cycles @ + 25°C to +65°C, 80- 98% RH. |
| Salt Spray | Method 101, Condition A (90-95% RH @ 5% NaCl Solution, 96 hrs). |
| Thermal Shock | Method 107D, Condition A (Five cycles @ -55°C to +25°C to +85°C to +25°C). |
| Operating Temperature | -40° C to +85° C |

Pulse Tolerance Curves



Tech Specs

Tables

Table A: Lists UL Recognized, CSA Accepted and VDE Certified configurations and performance capabilities as a Component Supplementary Protector.

| Component Supplementary Protectors | | | | | | | | | | |
|------------------------------------|--------------------|-----------|--------------------|-----------------|-------------------------------|---------------------|------------------------|---------------------------|-------------------|-----------------|
| Circuit Configuration | Voltage | | | Current Rating | Short Circuit Capacity (Amps) | | | | Application Codes | |
| | Max Rating | Frequency | Phase ¹ | | UL/CSA | | VDE | | UL | CSA |
| | | | | Full Load Amps | with Backup Fuse | without Backup Fuse | (Inc) with Backup Fuse | (Inc) without Backup Fuse | | |
| Series | 65 | DC | --- | 0.02 - 50 | --- | 5,000 | 5,000 | 1,500 | TC1, 2, OL1, UI | TC1, 2, OL1, UI |
| | 80 | | | | | | | | | |
| | 125 / 250 | 50 / 60 | 1 | | 3,000 | --- | --- | | | |
| | 250 | | 1 & 3 | | 5,000 ² | --- | --- | --- | | |
| | 277 | | 1 | | | | | | | |
| 480 V ³ | 1 & 3 | --- | --- | TC1, 2, OL1, C1 | TC1, 2, OL1, C1 | | | | | |
| Switch Only | 65 | DC | --- | 0.02 - 50 | | | | | | |
| | 250 | | | | | | | | | |
| | 277 | 1 | | | | | | | | |
| | 480 V ³ | 1 & 3 | 0.02 - 30 | | | | | | | |

Notes:

- 1 DC and 1 Phase 277 V ratings are 1 or 2 poles breaking. Three phase ratings are 3 poles breaking.
- 2 Requires branch circuit backup with a UL LISTED Type K5 or RK5 fuse rated 15A minimum and no more than 4 times full load amps not to exceed 150 A for 250V rating and 125 A for 277 and 480 V ratings.
- 3 UL recognition and CSA Acceptance at 480 volts refers to 3 and 4 pole versions, used only in a 3 phase WYE connected circuit or 2 pole versions connected with 2 poles breaking 1 phase and backed up with series fusing per note 2

Agency Approvals

| | |
|---------------|--|
| UL 1077 | Component Recognition Program as Protectors, Supplementary (Guide QVNU2, File E75596) |
| UL 508 | Switches, Industrial Control (Guide NRNT2, File E148683) |
| CSA Accepted | Component Supplementary Protector under Class 3215 30, File 047848 0 000 CSA Standard C22.2 No. 235 |
| VDE Certified | EN60934, VDE 0642 under File No. 10537 |

Ordering Scheme

Sample Part Number D A 3 - B0 - 10 - 450 - 1 2 1 - C

Selection 1 2 3 4 5 6 7 8 9 10

1. SERIES

D D-Series

2. ACTUATOR ¹

Handle ²

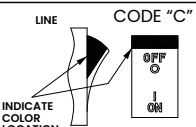
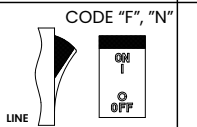
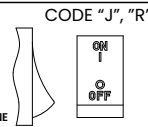
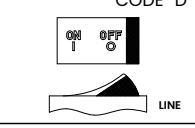
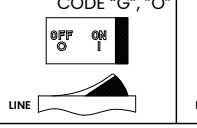
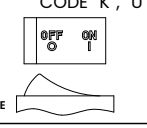
- A Handle, one per pole
- B Handle, one per multipole unit

Visi-Rocker ³

- C Indicate ON, vertical legend
- D Indicate ON, horizontal legend
- E Indicate ON, no legend (VDE approval not available with no legend)
- F Indicate OFF, vertical legend
- G Indicate OFF, horizontal legend
- H Indicate OFF, no legend (VDE approval not available with no legend)

Single Color Rocker ³

- J Vertical legend
- K Horizontal legend
- L No legend (VDE approval not available with no legend)

| ROCKER STYLE DESCRIPTIONS | | | |
|---------------------------|---|---|---|
| | INDICATE "ON" | INDICATE "OFF" | SINGLE COLOR |
| VERTICAL STYLE |  <p>LINE CODE "C"</p> <p>INDICATE COLOR LOCATION</p> |  <p>LINE CODE "F", "N"</p> |  <p>LINE CODE "J", "R"</p> |
| |  <p>LINE CODE "D"</p> |  <p>LINE CODE "G", "O"</p> |  <p>LINE CODE "K", "U"</p> |

3. POLES ²

- 1 One
- 2 Two
- 3 Three
- 4 Four

4. CIRCUIT

- A0 Switch Only (No Coil) ⁴
- B0 Series Trip (Current)
- C0 Series Trip (Voltage)

5. FREQUENCY & DELAY

- 03 DC 50/60Hz, Switch Only
- 10 ⁵ DC Instantaneous
- 11 DC Ultra Short
- 12 DC Short
- 14 DC Medium
- 16 DC Long
- 20 ⁵ 50/60Hz Instantaneous
- 21 50/60Hz Ultra Short
- 22 50/60Hz Short
- 24 50/60Hz Medium
- 26 50/60Hz Long
- 32 DC, 50/60Hz Short
- 34 DC, 50/60Hz Medium
- 36 DC, 50/60Hz Long
- 42 ⁶ 50/60Hz Short, High-inrush
- 44 ⁶ 50/60Hz Medium, High-inrush
- 46 ⁶ 50/60Hz Long, High-inrush
- 52 ⁶ DC, Short, High-inrush
- 54 ⁶ DC, Medium, High-inrush
- 56 ⁶ DC, Long, High-inrush

6. CURRENT RATING (AMPERES) ⁹

| CODE | AMPERES | CODE | AMPERES | CODE | AMPERES | CODE | AMPERES |
|------|---------|------|---------|------|---------|------|---------|
| 020 | 0.020 | 275 | 0.750 | 450 | 5.000 | 616 | 16.000 |
| 025 | 0.025 | 280 | 0.800 | 455 | 5.500 | 617 | 17.000 |
| 030 | 0.030 | 285 | 0.850 | 460 | 6.000 | 618 | 18.000 |
| 050 | 0.050 | 410 | 1.000 | 465 | 6.500 | 619 | 19.000 |
| 075 | 0.075 | 512 | 1.250 | 470 | 7.000 | 620 | 20.000 |
| 080 | 0.080 | 413 | 1.300 | 572 | 7.250 | 621 | 21.000 |
| 085 | 0.085 | 414 | 1.400 | 475 | 7.500 | 622 | 22.000 |
| 210 | 0.100 | 415 | 1.500 | 480 | 8.000 | 623 | 23.000 |
| 215 | 0.150 | 517 | 1.750 | 485 | 8.500 | 624 | 24.000 |
| 220 | 0.200 | 420 | 2.000 | 490 | 9.000 | 625 | 25.000 |
| 225 | 0.250 | 522 | 2.250 | 495 | 9.500 | 626 | 26.000 |
| 230 | 0.300 | 425 | 2.500 | 610 | 10.000 | 627 | 27.000 |
| 235 | 0.350 | 527 | 2.750 | 710 | 10.500 | 628 | 28.000 |
| 240 | 0.400 | 430 | 3.000 | 611 | 11.000 | 629 | 29.000 |
| 245 | 0.450 | 532 | 3.250 | 711 | 11.500 | 630 | 30.000 |
| 250 | 0.500 | 435 | 3.500 | 612 | 12.000 | 632 | 32.000 |
| 255 | 0.550 | 436 | 3.600 | 712 | 12.500 | 635 | 35.000 |
| 260 | 0.600 | 440 | 4.000 | 613 | 13.000 | 640 | 40.000 |
| 265 | 0.650 | 445 | 4.500 | 614 | 14.000 | 645 | 45.000 |
| 270 | 0.700 | 547 | 4.750 | 615 | 15.000 | 650 | 50.000 |

OR VOLTAGE COIL (NORMAL RATED VOLTAGE) ⁷

| CODE | AMPERES | CODE | AMPERES | CODE | AMPERES |
|------|--------------|------|--------------|------|----------------|
| A06 | 6 DC, 5 DC | A48 | 48 DC, 40 DC | J24 | 24 AC, 20 AC |
| A12 | 12 DC, 10 DC | A65 | 65 DC, 55 DC | J48 | 48 AC, 40 AC |
| A18 | 18 DC, 15 DC | J06 | 6 AC, 5 AC | K20 | 120 AC, 65 AC |
| A24 | 24 DC, 20 DC | J12 | 12 AC, 10 AC | L40 | 240 AC, 130 AC |
| A32 | 32 DC, 25 DC | J18 | 18 AC, 15 AC | | |

7. TERMINAL

- 1 #10 Screw & Pressure Plate for Direct Wire Connection
- 2 #10 Screw without Pressure Plate

8. ACTUATOR COLOR & LEGEND

| Actuator or Visi-Color | Marking: | Marking Color: | Single Color Rocker/Handle | Visi-Rocker |
|------------------------|----------------------|----------------|----------------------------|-------------|
| Color: | I-O ON-OFF Dual/None | | | |
| White | A B 1 | Black | Black | White |
| Black | C D 2 | White | White | n/a |
| Red | F G 3 | White | White | Red |
| Green | H J 4 | White | White | Green |
| Blue | K L 5 | White | White | Blue |
| Yellow | M N 6 | Black | Black | Yellow |
| Gray | P Q 7 | Black | Black | Gray |
| Orange | R S 8 | Black | Black | Orange |

9. MOUNTING / VOLTAGE

| | MOUNTING STYLE | VOLTAGE |
|----------------|------------------------|---------|
| | Threaded Insert | |
| 1 | 6-32 x 0.195 inches | < 300 |
| C ⁸ | 6-32 x 0.195 inches | ≥ 300 |
| 2 | ISO M3 x 5mm | < 300 |
| D ⁸ | ISO M3 x 5mm | ≥ 300 |

10. AGENCY APPROVAL

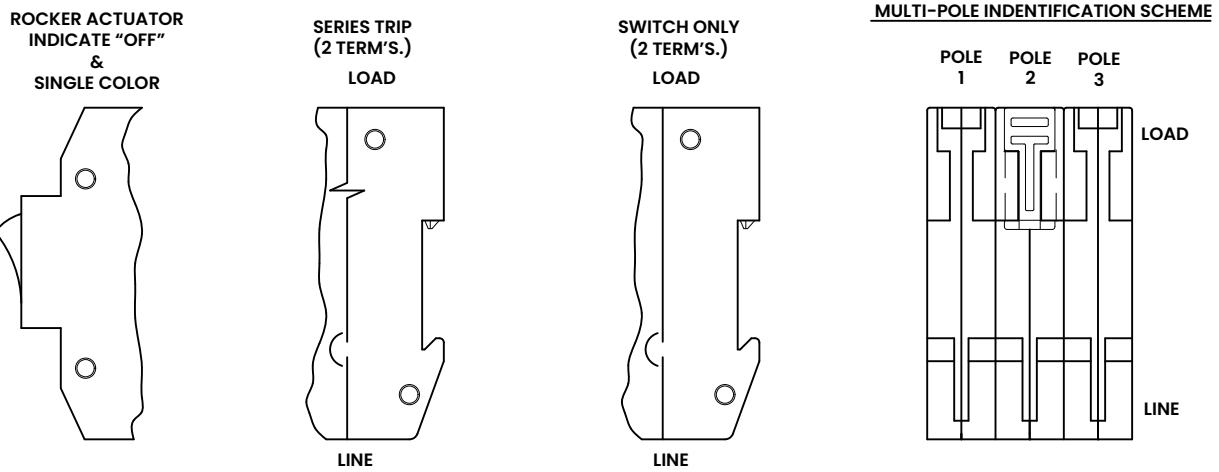
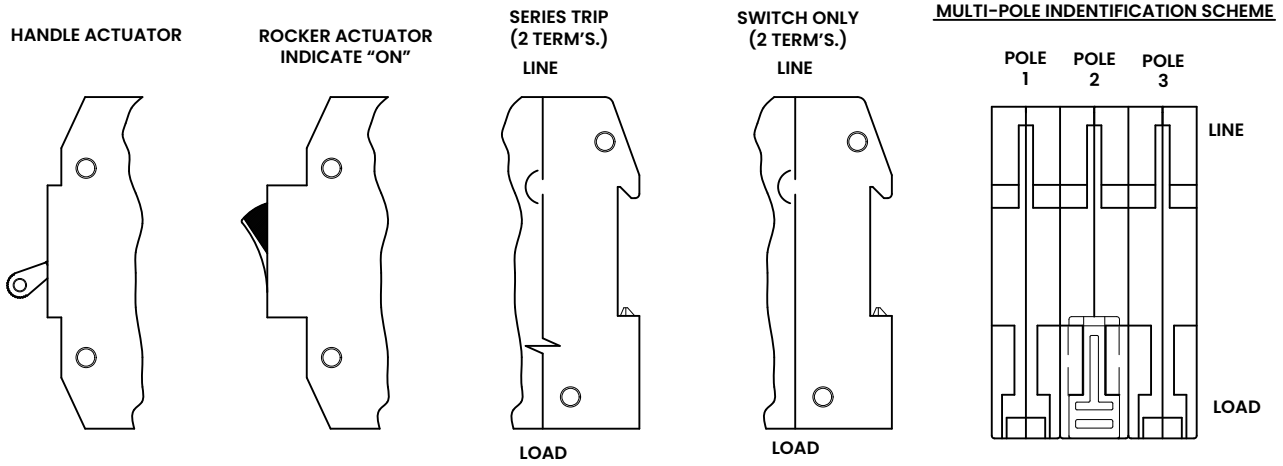
- C UL Recognized & CSA Accepted
- D ⁹ VDE Certified, UL Recognized & CSA Accepted

Notes:

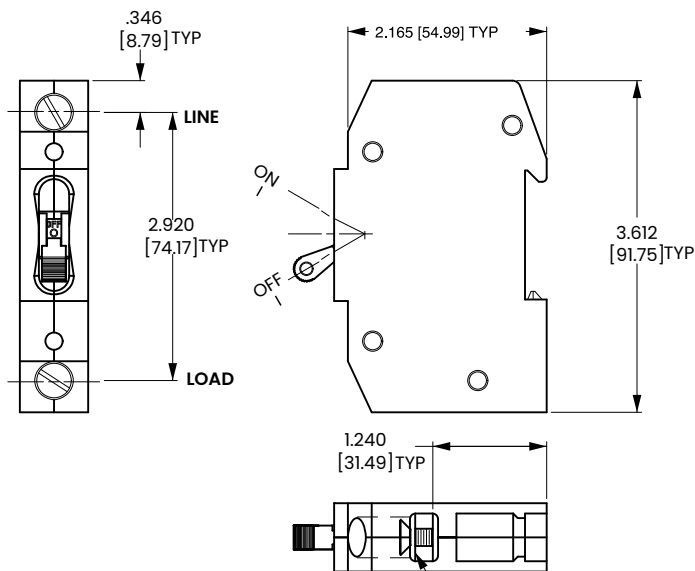
- 1 Handle breakers available up to four poles. Rocker breakers available up to three poles.
- 2 Actuator Code:
A: Multi-pole units factory assembled with common handle tie.
B: Handle location as viewed from front of breaker:
2 pole - left pole
3 pole - center pole
4 pole - two handles at center poles
- 3 Multipole rocker breakers have one rocker per breaker, as viewed from the front of the panel. Two pole - left pole. Three pole - center pole
- 4 ≤ 30A, select Current Rating code 630. 31-50A, select Current Rating code 650.
- 5 Voltage coil only available with delay codes 10 & 20.
- 6 Available to 50A max with circuit code B0 only.
- 7 Color shown is visi and legend with remainder of rocker black.
- 8 ≥ 300V: Three pole breaker 3Ø or 2 pole breaker 1Ø, UL/CSA limited to 30 FLA max.
- 9 VDE Approval requires Dual (I-O, ON-OFF) or I-O markings

Circuit & Terminal Diagram

inches [millimeters]



(HANDLE ACTUATOR SHOWN)

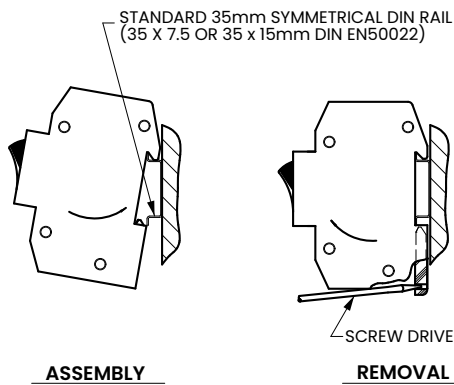
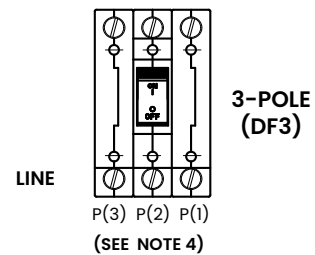
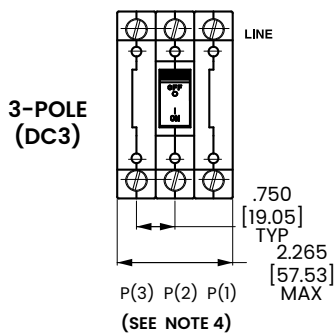
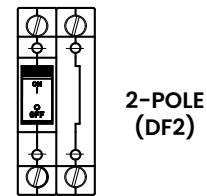
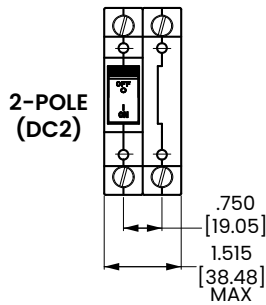
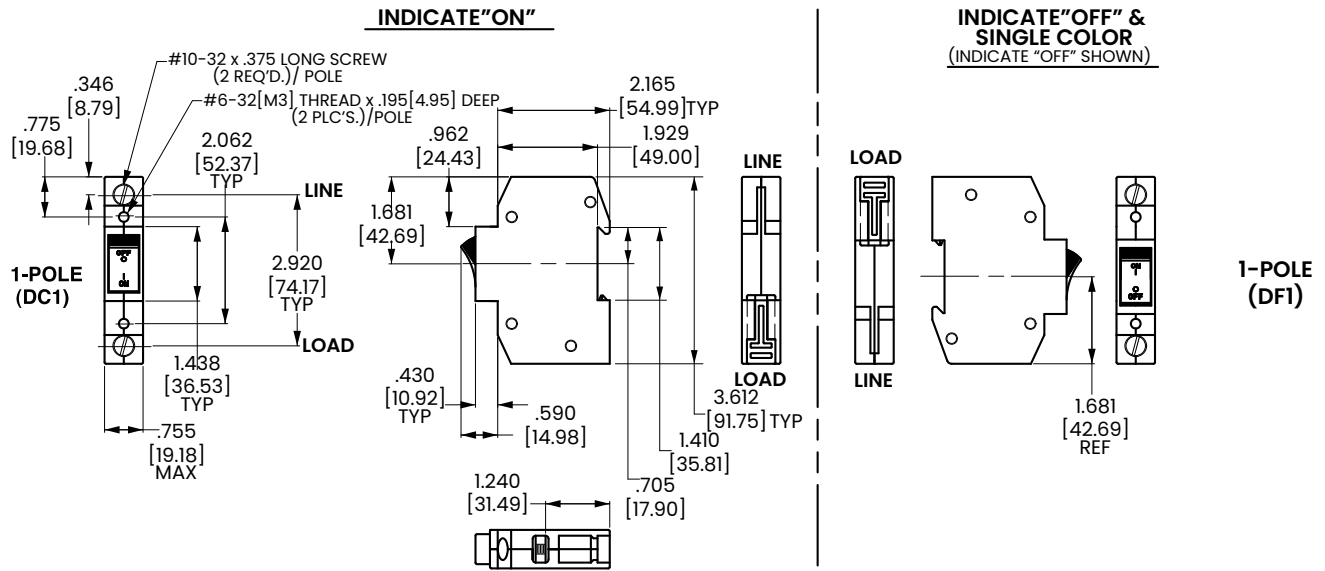


| TABLE A TIGHTENING TORQUE SPECIFICATIONS | |
|---|------------------------------|
| THREAD SIZE | TORQUE |
| #6-32[M3] HARDWARE | 7-9 IN-LBS [0.8-1.0 NM] |
| #6-32 THD TERMINAL SCREW | 15-20 IN-LBS [1.7-2.3 NM] |

Notes:
 1 Tolerance ± 0.020 [.51] unless otherwise specified.

Dimensional Specifications

inches [millimeters]

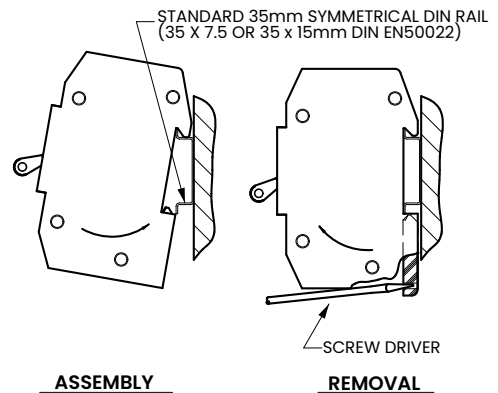
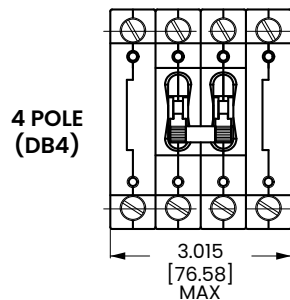
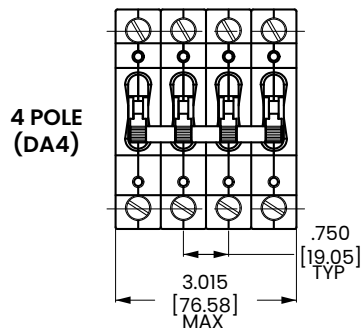
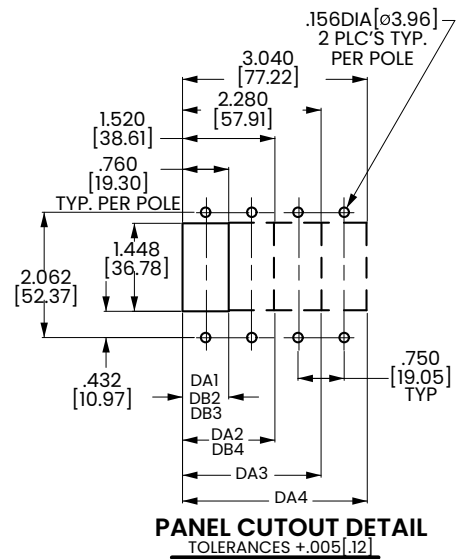
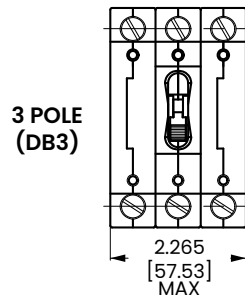
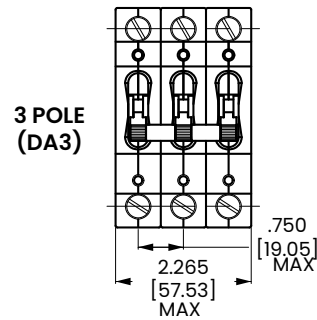
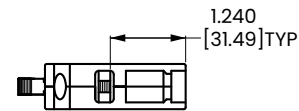
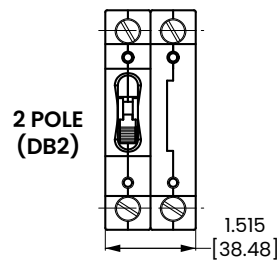
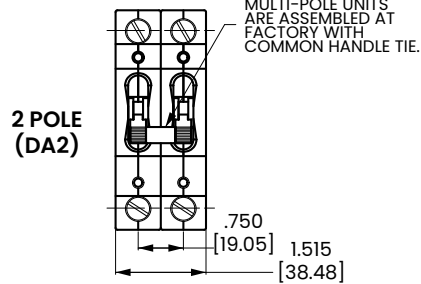
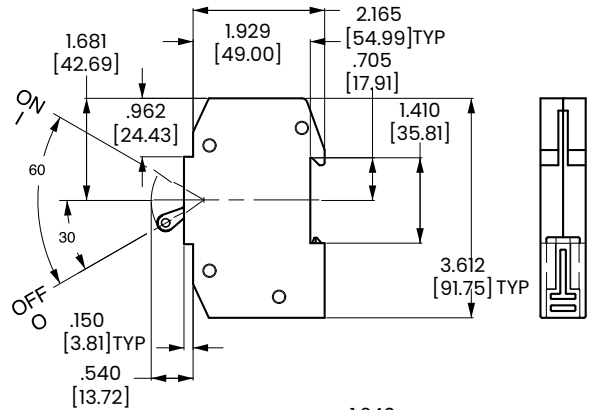
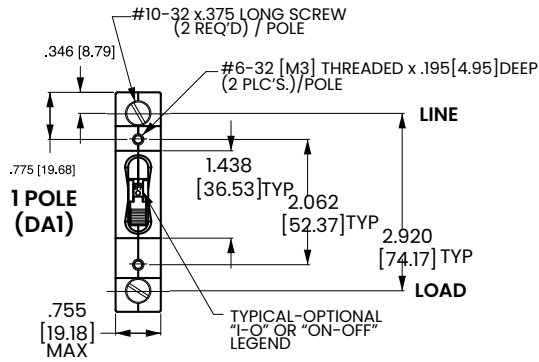


Notes:

- 1 Tolerance ± 0.20 [5] unless otherwise specified.
- 2 Dimensions apply to all variations shown. Notice that circuit breaker line and load terminal orientation on indicate OFF is opposite of indicate ON.
- 3 For pole orientation with horizontal legend, rotate front view clockwise 90°.

Dimensional Specifications

inches [millimeters]



Notes:
1 Tolerance ± 0.10 [.25] unless otherwise specified.

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